G-language Bookmarklet: a gateway for Semantic Web, Linked Data, and Web Services

Kazuharu Arakawa[1] (gaou@sfc.keio.ac.jp), Nobuhiro Kido[1], Kazuki Oshita[1], and Masaru Tomita[1]

[1] Institute for Advanced Biosciences, Keio University, Fujisawa, 252-8520, Japan

In order to efficiently navigate and query through the huge masses of biological information, concepts of Linked Data and Semantic Web are gaining momentum as promising means for data integration. In light of the advent of these new data representation models, we here present a bookmarklet that provides an intuitive user interface for accessing the Linked Data and for querying the resources of Semantic Web, through a graphical ring-shaped menu on any webpage that the user is browsing. G-language Bookmarklet is implemented as a bookmarklet to seamlessly work with regular web browsing, runs on any modern browsers, and can be invoked from any websites, without the need for installation of software or any specialized browser plugins. By selecting keywords of interest within any webpage and by opening the G-language Bookmarklet, an array of icons in the shape of a ring appears with animation on top of the webpage that the user is currently browsing. Here the users can select the database to search with the selected keyword, such as Wikipedia, Google, NCBI Entrez, Pubmed, KEGG, and Bio2RDF. Results of the queries are readily shown as another ring of icons representing the top hits of the query, and when the query reaches a single entry, users are redirected to the webpage of that entry. Likewise the queries, users can also access web services such as BLAST and G-language REST services from the bookmarklet. The bookmarklet is freely available at: http://www.g-language.org/wiki/bookmarklet.

Semantic Web and Linked Data are generally accepted as the promising means for data integration in biology, lead by initiatives such as Concept Web Alliance, Banff Manifesto, SADI, and DBCLS BioHackathon 2010. G-language Bookmarklet aims to provide a gateway to these new technologies for the end-users, by providing an intuitive interface with icons and animations that works on any web pages without the need for installation.

Each data in Semantic Web is represented as the Triple (Subject - Predicate - Object), and the connection of these triples form a gigantic graph of linked data. Therefore, a feasible interface to query the data is to start from a keyword to find matching Subjects, display a list of related Predicates, and jump to the list of Objects. Ring interface is an effective implementation for this purpose, whereby the Predicates and Objects are displayed as a series of rings. Semantic Web would be a complement to existing data, as opposed to being an immediate replacement. We therefore provide a unique and consistent intuitive user interface for web search engines, linked data, semantic web, and web services. In this way, users can take advantage of the Semantic Web and Linked Data coherently with existing data.

URL(project): http://www.g-language.org/wiki/bookmarklet
URL(code): http://www.g-language.org/cube/cube.js
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